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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,468	12/04/2003	Toru Mizutani	9792909-5788	6259

7590 12/20/2005

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EXAMINER	
GOFF II, JOHN L	
ART UNIT	**PAPER NUMBER**
1733	

DATE MAILED: 12/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/727,468	MIZUTANI ET AL.	
	Examiner	Art Unit	
	John L. Goff	1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13 and 15-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13 and 15-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/768,093.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12/4/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 13, 19, and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. (WO 99/40634 with U.S. Patent 6,632,538 used as the English translation) in view of either one of Barker et al. (U.S. Patent 5,871,865) or Tsukamoto et al. (U.S. Patent 6,022,642).

Yamazaki et al. disclose a method of forming a gel electrolyte battery comprising layering a positive electrode collector (e.g. a metal foil), a positive electrode (e.g. strip-like) made up of a positive active material layer (e.g. containing a lithium compound oxide), a gel electrolyte (e.g. also including a micro-porous separator), a negative electrode (e.g. strip-like)

made up of a negative active material layer (e.g. containing a material capable of doping/undoping lithium), and a negative electrode collector (e.g. a metal foil) to form a battery device (e.g. longitudinally coiled), accommodating the battery device within a laminated film (e.g. a laminated film including an aluminum film sandwiched between two resin layers), and heating sealing the laminated film to form the battery (Figures 1-5 and Column 2, lines 35-67 and Column 3, lines 1-37 and Column 5, lines 46-56). Yamazaki et al. are silent as to charging and discharging the battery device within the laminated film prior to heat sealing. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in Yamazaki et al. a step of charging and discharging the battery device within the laminated film prior to heat sealing to prevent the gases that form during initial charging and discharging of the battery device from deforming the battery device and/or laminated film as was well know in the art and shown for example by either one of Barker et al. or Tsukamoto et al.

Barker et al. and Tsukamoto et al. are typical of prior art processes of heat sealing an electrolyte battery device within a laminated film to form an electrolyte battery wherein the battery device within the laminated film undergoes a step of charging and discharging prior to heat sealing the laminated film to remove the gases that form during initial charging and discharging of the battery device that would otherwise deform the battery device and/or laminated film (Column 1, lines 5-11 and Column 11, lines 18-45 of Barker et al. and Column 5, lines 35-53 of Tsukamoto et al.).

Regarding claim 13, the limitation requiring pressing during heat sealing is intrinsic to Yamazaki et al. as (at least part of) the battery device is located in the heat sealed regions of the laminated film (See Figure 5) such that a pressing of the laminated film during heat sealing to

seal the laminated film in the heat sealed regions would have also pressed (at least part of) the battery device.

4. Claims 13, 15-19, and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. and either one of Barker et al. or Tsukamoto et al. as applied to claims 13, 19, and 23-25 above, and further in view of Kinsman (U.S. Patent 4,069,578) and either one of Takeguchi et al. (U.S. Patent 5,116,440) or Hass et al. (U.S. Patent 5,972,140).

Yamazaki et al. and either one of Barker et al. or Tsukamoto et al. as described above teach all of the limitations in claims 13, 15-19, and 23-25 except for the teaching of a particular heat sealing device for sealing the battery device within the laminated film. It would have been obvious to one of ordinary skill in the art at the time the invention was made to perform the heat sealing taught by Yamazaki et al. as modified by either one of Barker et al. or Tsukamoto et al. using a well known and conventional heat sealing device for a battery such as that shown for example by Kinsman as only the expected results of sealing the battery device within the laminated film would be achieved.

Kinsman discloses as well known and conventional device for heat sealing a battery wherein the device is a press including an outer heated pressing member for pressing the outer sealed regions of the battery and an inner spring pressing member for pressing the inner unsealed regions of the battery (Figure 2 and Column 3, lines 40-61).

Regarding claims 15 and 16, Kinsman teaches pressing at well known pressures including 490 kPa (Column 3, lines 58-61), and Yamazaki et al. teach the heat seal layers melt at 100 °C (Column 58, lines 54-61) such that pressing at 490 kPa and 100 °C would have been obvious to one of ordinary skill in the art. Furthermore, it would have been obvious to one of

ordinary skill in art at the time the invention was made to experimentally determine the heat sealing pressure and temperature as a function of the type of materials pressed, the time of pressing, etc. as doing so would have required nothing more than ordinary skill and routine experimentation.

Regarding claims 17 and 18, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the inner pressing member taught by Yamazaki et al. as modified by either one of Barker et al. or Tsukamoto et al. and Kinsman either a spring or elastic member as both were well known functionally equivalent alternatives for providing a pressing force to a battery as shown for example by Yamazaki et al. Yamazaki et al. teach a pressing member for pressing the battery device and laminated film wherein the pressing member is formed from either a spring or elastic member (Column 69, lines 66-67 and Column 70, lines 1-14).

Regarding claim 18, Yamazaki et al. and either one of Barker et al. or Tsukamoto et al. and Kinsman are silent as to using silicon rubber as the elastic member. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the elastic member taught by Yamazaki et al. as modified by either one of Barker et al. or Tsukamoto et al. and Kinsman one formed of silicon rubber a well known and conventional material for forming pressing members of this type as shown for example by either one of Takeguchi et al. or Hass et al.

Takeguchi et al. and Hass et al. are exemplary of elastic pressing members used in a pressing device wherein the elastic members comprise heat-resistant silicon rubber (Figure 1A-

1C and Column 3, lines 7-15 of Takeguchi et al. and Figure 4 and Column 4, lines 18-32 and Column 6, lines 41-48 of Hass et al.).

5. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. and either one of Barker et al. or Tsukamoto et al. as applied to claims 13, 19, and 23-25 above, and further in view of Akashi (U.S. Patent 5,658,686).

Yamazaki et al. and either one of Barker et al. or Tsukamoto et al. as described above teach all of the limitations in claims 20 and 21 except for a specific teaching of the particular gel electrolyte used. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the gel electrolyte taught by Yamazaki et al. as modified by either one of Barker et al. or Tsukamoto et al. any well known and conventional gel electrolyte used in battery devices of the same type such as that shown for example by Akashi as only the expected results of forming a gel electrolyte battery would be achieved.

Akashi is exemplary of a gel electrolyte used to form a gel electrolyte battery wherein the gel electrolyte comprises a matrix polymer (e.g. polyacrylonitrile, acrylonitrile-butadiene rubber, etc.), a non-aqueous solvent, and an electrolyte salt with the claimed ratio (Column 28-58).

6. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. and either one of Barker et al. or Tsukamoto et al. and Kinsman and either one of Takeguchi et al. or Hass et al. as applied to claims 13, 15-19, and 23-25 above, and further in view of Akashi.

Claims 20 and 21 are rejected in the same manner as that applied in paragraph 5.

7. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. and either one of Barker et al. or Tsukamoto et al. as applied to claims 13, 19, and 23-25 above, and further in view of JP 11140209 (See also the English abstract).

Yamazaki et al. and either one of Barker et al. or Tsukamoto et al. as described above teach all of the limitations in claim 22 except for the teaching of the separator formed of a polyolefin. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the separator taught by Yamazaki et al. as modified by either one of Barker et al. or Tsukamoto et al. one formed of polyolefin to form a high strength separator as was well known and shown for example by JP 11140209.

JP 11140209 discloses an electrolyte battery including a porous, polyolefin, high strength separator (See the abstract).

8. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. and either one of Barker et al. or Tsukamoto et al. and Kinsman and either one of Takeguchi et al. or Hass et al. as applied to claims 13, 15-19, and 23-25 above, and further in view of JP 11140209.

Claim 22 is rejected in the same manner as that applied in paragraph 7.

9. Claims 13, 15-21, 23, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatta et al. (U.S. Patent 6,797,430) in view of either one of Barker et al. or Tsukamoto et al.

Hatta et al. disclose a method of forming a gel electrolyte battery comprising layering a positive electrode collector (e.g. a metal foil), a positive electrode (e.g. strip-like) made up of a positive active material layer (e.g. containing a lithium compound oxide), a gel electrolyte (e.g. formed from a matrix polymer (e.g. polyacrylonitrile), a non-aqueous solvent, and an electrolyte

salt), a negative electrode (e.g. strip-like) made up of a negative active material layer (e.g. containing a material capable of doping/undoping lithium), and a negative electrode collector (e.g. a metal foil) to form a battery device (e.g. coiled), accommodating the battery device within a laminated film (e.g. a laminated film including an aluminum film sandwiched between two resin layers), and applying heat and pressure to the battery device and laminated film (e.g. through a silicon rubber heated pressing device) to heat seal the laminated film and form the battery (Figures 1-9 and Column 4, lines 1-16 and 30-38 and Column 5, lines 13-50 and Column 8, lines 1-67 and Column 9, lines 1-67). Hatta et al. are silent as to charging and discharging the battery device within the laminated film prior to heat sealing. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in Hatta et al. a step of charging and discharging the battery device within the laminated film prior to heat sealing to prevent the gases that form during initial charging and discharging of the battery device from deforming the battery device and/or laminated film as was well know in the art and shown for example by either one of Barker et al. or Tsukamoto et al.

Barker et al. and Tsukamoto et al. are described above in full detail.

Regarding claims 14 and 15, it would have been obvious to one of ordinary skill in art at the time the invention was made to experimentally determine the heat sealing pressure and temperature as a function of the type of materials pressed, the time of pressing, etc. as doing so would have required nothing more than ordinary skill and routine experimentation.

10. Claims 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatta et al. and either one of Barker et al. or Tsukamoto et al. as applied to claims 13, 15-21, 23, and 25 above, and further in view of JP 11140209.

Hatta et al. and either one of Barker et al. or Tsukamoto et al. as described above teach all of the limitations in claim 22 and 24 except for a teaching of including a porous polyolefin separator. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include in Hatta et al. as modified by either one of Barker et al. or Tsukamoto et al. a porous polyolefin separator as was well known and shown for example by JP 11140209 as only the expected results would be achieved.

JP 11140209 is described above in full detail.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **(571) 272-1216**. The examiner can normally be reached on M-F (7:15 AM - 3:45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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